

REMARKS

Claims 1-20 are pending in the application. By this paper, claims 3, 4, 6, 7, 9 and 19 have been amended. Reconsideration and allowance of the application in light of the arguments and amendments herein are respectfully requested.

Objection to the drawings

The drawings stand objected to under 37 CFR 1.83(a). The office action asserts that the drawings must show every feature of the invention specified in the claims, including "the time constant of which is less than a minimum period occurring in the digital signal to be output" as recited in claims 10 and 20. The office action has required that this feature be added to the drawings or else cancelled from the claims.

By this paper, the drawing has been amended to add new FIG. 3 showing a timing diagram with a digital signal and a time constant which is shorter than the minimum period of the digital signal. Further, the specification has been amended at two places to conform the specification to the amended drawing. No new matter is added by this amendment. Rather, support for the amendment is found in claim 10, as filed, which recites "the capacitance of the capacitor together with the terminal resistance forms a time function element, the time constant of which is less than the minimum period occurring in the digital signal to be output...." Further, the time constant is present implicitly in FIG. 2, since the capacitors 11 and 12 and a terminal resistor 3 connected to the output of the capacitors are shown and a capacitor together with a resistor always forms an RC element having a time constant.

Accordingly, in view of the amendments to the drawing and the specification, withdrawal of the objection to the drawings is respectfully requested.

Rejection under 35 U.S.C. § 112

Claims 3, 4, 6, 7, 9, 10, 19 and 20 stand rejected under 35 U.S.C. § 112 as being indefinite. The office action requires clarification on several points.

By this paper, claims 3, 4, 6, 7, 9 and 19 have been amended to clarify the subject matter defined by these claims. In claims 3 and 4, the increase signal recited in line 2 is indeed the same increase signal that has previously been recited in claims 1 and 2. The same holds true for claim 6, wherein the capacitor is the same capacitor already recited in claim 1. Further, the same holds true for claim 7, wherein "a driver stage" is the same driver stage as in claim 1. Also, in claim 9, the capacitor in line 6 is the same capacitor as in claim 1.

Each of claims 3, 4, 6, 7, 9 and 19 has been amended to clarify the antecedent bases of the questioned limitations. It is respectfully submitted that claims 1-20 are now in accord with the requirements of 35 U.S.C. § 112. Withdrawal of the rejection of claims 3, 4, 6, 7, 9, 10, 19 and 20 is respectfully requested.

Prior Art Rejection

Claims 1-4, 6-9, 11-14 and 16-19 stand rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. patent number 4,264,872 to Suzuki ("Suzuki"). According to the office action, Suzuki discloses all claimed features in FIG. 2. Claims 5 and 15 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Suzuki.

The present invention as defined by independent claims 1 and 11 differs significantly from the apparatus described in Suzuki. The present invention relates to the problem of edge steepness when providing digital signals as an output, such as to the output of an output driver. The disclosure proposes temporarily increasing the current flowing via and output of the driver in synchronization with the edges of at least one trigger signal of the driver stage, wherein the increased current is provided via a capacitor to increase the output current of the driver stage.

In contrast, Suzuki, relates to the problem of asymmetry in an amplifier due to process variations which makes the amplification of small signals impossible (column 1, lines 36-61 of Suzuki). To achieve this end, a two-step procedure is employed in the embodiment of FIG. 2 of the Suzuki reference; a similar procedure which uses more control signals is employed in the embodiment of FIG. 4. In particular, in the embodiment of FIG. 2 before the actual amplification ("SENSE"), a pre-charge operation

is performed to compensate for process variations. However, no increased output current flows during this pre-charge operation, and moreover, the actual amplification does not occur during this pre-charge phase (see in particular column 3, lines 6-34 of Suzuki). In order to be able to perform this pre-charge operation, capacitors 17 and 18 have to be present for decoupling.

After the above-described pre-charging operation, the actual input signal is applied to the transistors 11 and 12 of Suzuki via the capacitors 7 and 18. However, as in particular described in column 4, lines 3-14 of Suzuki, these input signals are attenuated because of the capacitors in this case. However, an attenuated input signal also causes an attenuated output signal which is exactly the opposite of the temporarily increased current of the present invention.

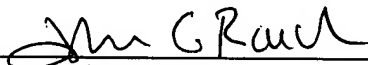
Additionally, it should be noted that at least during the actual amplification ("SENSE"), the capacitors of Suzuki are not even connected with the output of the amplifier, but only with the control input of transistors 11 and 12 and with the inputs, IN and \overline{IN} of the amplifier. Therefore, no increased current may be supplied via or by these capacitors to the output.

In summary, the present invention as defined by the independent claims differs significantly from Suzuki since, as explained above, Suzuki neither discloses temporarily increasing a current flowing via an output of the driver stage nor provided the increased current via or by a capacitor. Consequently, claims 1-20 are neither anticipated nor rendered obvious by Suzuki. Withdrawal of the rejections of these claims is respectfully requested.

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Amendment dated: May 12, 2006
Reply to office action dated: January 12, 2006

With this response, the application is believed to be in condition for allowance. Should the examiner desire a telephone conference to be of assistance in advancing the application to allowance, the examiner is invited to call the undersigned attorney at the telephone number below.

Respectfully submitted,



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Amendment to the Drawing

The attached sheet of drawings includes new FIG. 3.

Attachment: new sheet 2 of drawings including FIG. 3.